

EFFECT OF COOPERATION WITH UNIVERSITIES ON THE INNOVATIVENESS OF TOURISM ENTERPRISES

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Abstract

Introduction. Tourism enterprises operating in a dynamic environment mitigate the erosion of competitive advantages by introducing new products, processes or marketing activities. Universities may serve as one of the essential sources of knowledge, enabling tourism enterprises to implement innovations. The article aims to identify the importance of cooperation with universities in driving innovation in tourism enterprises. **Material and methods.** To achieve the aim of the paper, an empirical study was carried out on a sample of 383 hotels and tour operators. **Results.** As a result, it was found that universities play a relatively minor role in innovation implementation and for inspiring innovative activity. However, the role of universities is highly diversified. For almost one-third of the entities, universities are important for innovative activities – they play a greater role in large entities, belonging to chains and operating longer on the market. It has also been identified that incremental and marketing innovations are most frequently created due to cooperation. **Conclusions.** Results indicate that for increased universities' role in innovation, companies' resources and absorption capacity are required. The article also suggests further directions of research on relations between universities and tourism enterprises.

Key words: tourism enterprises, innovations, universities, cooperation

Introduction

Scientific knowledge created in universities is considered as an important source of innovation [1, 2]. University to industry knowledge transfer consists of all activities between universities and enterprises aimed at transferring knowledge [3]. It is a process in which knowledge flows unidirectionally from the university to external stakeholders who use it to achieve their goals [4]. The role of universities is to create and transmit knowledge, while companies are the recipients of this knowledge [5]. However, in practice, some stress that this process is not unidirectional [6]. It is more a co-creation of knowledge that results from academics' active involvement in interactions with stakeholders. The unique role of universities in stimulating the innovation of tourism enterprises makes this issue increasingly the focus of researchers.

The article aims to identify the role of cooperation between tourism enterprises and universities. Particular attention was given to the role of universities in fostering the innovation of tourism enterprises. The paper consists of 4 parts, preceded by an introduction. The first one presents literature on the effects of enterprises' involvement in cooperation with universities. The next part shows the methodology of empirical research, which was conducted among Polish tourism companies. The next part contains the study results, and the last one – a discussion and recommendations for further research.

The importance of universities for tourism enterprises

To understand the reasons for entrepreneurs' engagement in relationships with universities, cooperation benefits should be identified. Previous research on the positive effects of cooperation has been carried out mainly in high technology sectors [7]. In service sectors, including tourism, such studies are still scarce [8]. This is primarily due to the belief that non-techno-

logical firms do not have sufficient absorptive capacity for academic knowledge [7].

In technology incentive industries (e.g. IT, biotechnology, manufacturing), innovations are often driven by knowledge developed in the universities and research institutions [9, 10]. Results from the biopharmaceutical sector indicate that the role of academia-business collaboration for innovation is vital in the first stage of the innovation process and declines over time [11]. Results from creative industries show that collaboration with the world of science allows, especially small and medium-sized entrepreneurs, to access external knowledge resources and, as a result, stimulates organisational creativity [12]. Access to these resources and their creative use is an essential source of innovation [13].

As Kaufmann and Tödtling [14] found, universities' role is significant in stimulating disruptive innovation, while it plays a relatively minor role in the development of incremental innovation. Similar conclusions were reached by Monjon and Waelbroeck [15], who found that firms innovating radically use academic knowledge more often, while firms innovating incrementally use intra-industry knowledge spillovers most often. Belderbos et al. [16] showed that incremental innovators are more likely to cooperate with suppliers and customers, while radical innovators are more likely to cooperate with universities. Such relationships can be explained by the degree of knowledge novelty. To develop incremental innovations, knowledge with a low degree of novelty is sufficient, which can be created within the company or acquired from close sources. Academic knowledge with a high degree of novelty favours the creation of disruptive innovations [17].

Other benefits of business-university collaboration include cost reductions resulting from the involvement of scientific personnel [18], risk reduction of ongoing research, or universities as sources of employees [12]. Cooperation is also an opportunity for companies to build an attractive image [5]. Firms perceive

cooperation with universities as a relatively cheap and secure source of expertise, which can enhance competitiveness [19]. The role of universities as sources of talent, entrepreneurship, and leaders necessary for developing businesses and regions is also highlighted [20].

The tourism industry is usually considered as a service sector with a significant human factor intensity, and relatively small role of high technology [21]. Moreover, as a peripheral sector [8], it is characterised by a significant representation of small and medium-sized enterprises and fragmentation. Tourism enterprises have the characteristics of so-called supplier dominated firms [7]. These entities do not create high technology products themselves but use suppliers of such technologies to provide services.

Given these characteristics, the importance of collaboration and the need to use academic knowledge in the tourism industry is questioned [22]. Thomas [8] believes that innovative tourism firms do not need universities. According to him, in the tourism industry, "whether gaining access to the knowledge produced in universities leads to innovation is much less certain" (p. 22). A survey carried out in hotels and restaurants in the USA shows that tourism companies have even a slight awareness of how universities can help them achieve their business goals [23].

Taking into account previous research as well as existing knowledge gaps regarding the role of universities for tourism enterprises, the following specific research questions were formulated:

1. What are the benefits of cooperation with universities for tourism companies in Poland?
2. What is the role of universities in stimulating innovation in tourism companies?
3. How is this role differentiated given the characteristics of the companies and the types of innovation?

The next section presents the methodology of the empirical study aimed at answering the above questions.

Material and Methods

In the study of tourism enterprises, random and stratified sampling was used. The sampling frame consisted of databases of accommodation facilities and tour operators administered by the Ministry of Sport and Tourism in Poland. Enterprises were drawn from 3 groups (layers) selected based on location. The first layer consisted of regions with leading scientific centres for tourism research (Warsaw, Poznań, Kraków, Łódź, Wrocław, Katowice, Trójmiasto; sample size 34.44%). The second one – regions where public universities providing education in faculties related to tourism are located (sample share 20.55%), and the third one – other subregions (sample share 45.01%). In total, 383 entities were surveyed (including 194 travel operators and 189 accommodation establishments). The structure of the sample is presented in Table 1.

The empirical data necessary to answer the research questions was obtained by telephone survey using CATI SUPPORT 4.1 software. The interview was conducted with the respondents over the phone, and the interviewer read out the questions and noted down the answers using a particular computer script. The primary study was preceded by a pilot study, based on which minor errors in the questionnaire design were resolved.

The substantive part of the questionnaire consisted of several questions. The first one determined the effects of collaboration between enterprises and universities, with particular emphasis on the influence of academic knowledge on a company's innovativeness. The respondents declared the importance

Table 1. The sample structure

Characteristics		Number	Share
Company type	hotel	189	49.3%
	tour operator	194	50.7%
Size measured by full-time employees	up to 9 (micro)	226	59.0%
	10-49 (small)	123	32.1%
	50 and over (medium and large)	34	8.9%
Company lifetime	Up to 3 years	42	11.0%
	4-8 years	104	27.2%
	9-13 years	86	22.5%
	14-18 years	51	13.3%
Corporate ownership structure	19 and over	100	26.1%
	domestic company	354	92.4%
	multinational or mixed company	29	7.6%

of cooperation with universities for achieving positive results. Moreover, the respondents, who implemented innovations due to the collaboration with universities, defined such innovations' nature: the type of innovation and its scope. The respondents were also asked about the importance of various sources in inspiring their innovative activity. The results were subjected to descriptive analysis, and the post hoc and multiple pairwise comparisons tests were applied (assuming $p < 0.005$) using the IBM SPSS Statistics 26 software.

Results

The role of cooperation with universities in the innovativeness of enterprises

Based on the study, the effects of applying academic knowledge in the tourism industry were identified (Fig. 1). The role of cooperation was determined concerning six types of positive results, i.e. improvement of image, an increase in employees' competences, improvement in the company's situation on the labour market, improvement in financial results, new ideas for implementing innovations and actual implementation of innovations. Only those entities were asked about the role of universities in obtaining such effects which: 1) cooperated with universities and 2) recorded such a result in the last three years before the survey.

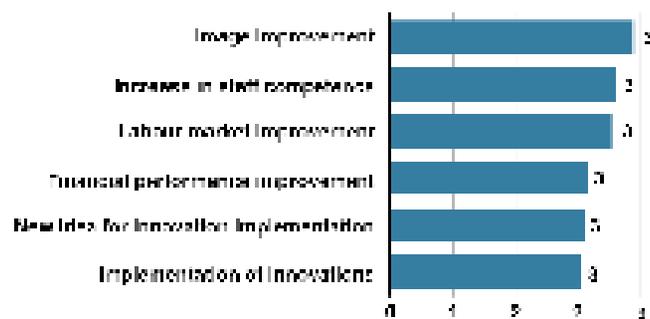


Figure 1. The effect of cooperation with universities on the tourism enterprises' performance

The most substantial importance of cooperation was reported by enterprises improving their image among customers (M = 3.21, 5-grade scale, where 1 meant no impact of collaboration on image improvement, and 5 – very high effect of cooperation). This was followed by an increase in employees’ competences (M = 2.99) and improvement in the enterprise’s situation in the labour market due to better access to labour resources (M = 2.92).

According to the respondents, using academic knowledge has a moderate effect on inspiring new ideas for innovation (M = 2.55) or implementing innovation in the company (M = 2.51). Considering the characteristics of the investigated enterprises, one can notice a diversified effect of cooperation on innovation implementation. The most significant differences relate to such features as:

- company size (large M = 3.08, micro M = 2.24);
- network connectedness (network M = 2.78, independent M = 2.50);
- ownership structure (domestic M = 2.50, international and mixed M = 2.57);
- type of company (hotels M = 2.84, tour operators M = 2.26).

Using post hoc tests of variance and multiple pairwise comparisons (p < 0.005, using Bonferroni correction), it was found that the role of collaboration with universities for innovation implementation was significantly higher in hotels than among travel operators.

Respondents who implemented innovations as a result of cooperation were asked to specify these innovations’ nature. Academia sourced innovations were most often incremental in the heart (35.2%), with only 5.6% of enterprises implementing disruptive innovations due to cooperation. Moreover, collaboration with universities most often led to marketing innovations understood as the application of new media or techniques of product promotion or new methods of distribution and price setting. Process innovations, i.e. new or significantly improved production methods, distribution and business support, were implemented the least frequently (Fig. 2).

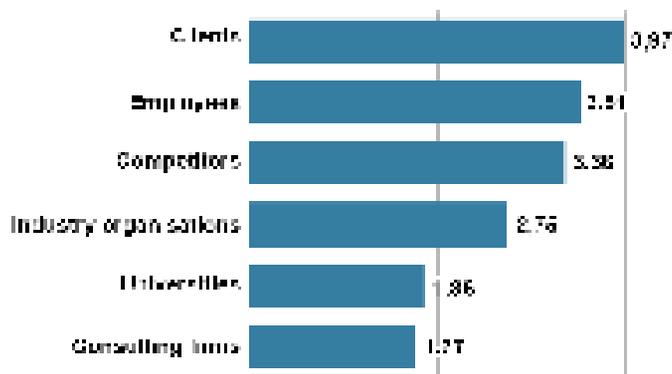


Figure 2. Types of innovations implemented as a result of cooperation with universities

The direct role of academic knowledge as a source of innovation compared to other sources is relatively low (Fig. 3). Respondents indicated that customers play the most critical role as the sources of inspiration in innovative activities.

Using post hoc tests and multiple pairwise comparisons (p < 0.005, using Bonferroni correction), it was found that the importance of academic knowledge as a source of innovation is significantly higher in medium and large enterprises (M = 2.24) than in micro enterprises (M = 1.73) and significantly higher

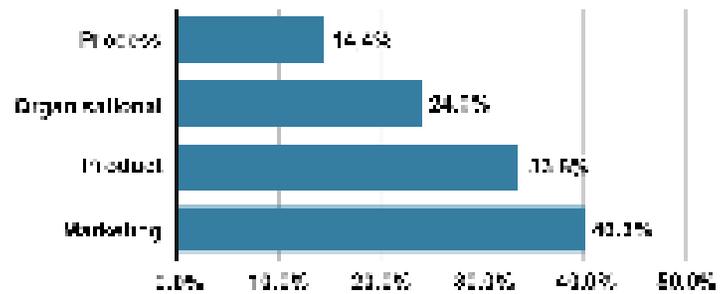


Figure 3. Sources of innovation activities in tourism companies

in chain companies (M = 2.63) than in individual enterprises (M = 1.79), as well as in enterprises operating longer on the market (for enterprises operating for 14 to 18 years M = 2.20; and for enterprises operating for 4 to 8 years M = 1.63).

Conclusions and discussion

In the contemporary environment (dynamic and labile), exogenous foundations for tourism companies’ development are essential. Enterprises entering a new path of development need an external trigger for such a change. According to previous research, external resources, especially knowledge resources from universities, can play such a role.

The impact of cooperation with universities on the innovativeness of tourism companies has not been assessed unequivocally. Considering the results for the whole surveyed population, it can be argued that universities’ role in stimulating innovation is relatively small (compared with other sources of knowledge). However, among the enterprises that cooperated and implemented innovations in the examined timeframe, almost one third perceived high and very high impact of cooperation with universities on their innovative activities.

Associations between engagement in cooperation with universities and performance have also been observed in other studies conducted in Polish enterprises. They show that companies that engage in the partnership are more innovative than those that do not [24]. In a report developed by the National Bank of Poland [25] and dedicated to Polish enterprises, the authors stress that “... although scientific bodies do not send a strong impulse for innovation, their cooperation with enterprises leads to an increase in innovation” (p. 167). On the other hand, as Gorzelak et al. [26] found, entrepreneurs in Poland do not show much interest in co-operation with science because it does not, in their opinion, lead to economic benefits. Also, in her study, Kaczmarek-Krawczyk [27] identified the low importance of universities as a source of knowledge in innovation processes. Similar research that Abbate, Cesaroni & Presenza [7] conducted in Italy’s low technology sector indicated that universities are not an essential source of innovation for companies (58% declared that universities are not a significant source and only 4% indicated that they play a significant role).

The study’s value stems from considering not only the fact of innovation implementation but also the role of universities in inspiring the innovation activity. New ideas that have not yet been implemented are often overlooked in analyses, while in the long term, they are essential for enterprises’ innovativeness. The survey shows that in 55% of the companies co-operating in the last three years, ideas for innovative solutions have emerged, although they have not yet been implemented. More than 29% said that collaboration with universities contributed significantly or very significantly to these ideas.

Considering the nature of innovations originating from cooperation, the findings of Kaufmann and Tödtling [14] and Monjon and Waelbroeck [15] have not been confirmed. According to them, universities' importance is higher for stimulating disruptive innovations and lower for incremental innovations.

The role of academic knowledge sources in enhancing innovation depends significantly on the type of company. The study shows that it is more important in large enterprises that operate as part of a chain. This confirms the importance of knowledge absorption capacity as a condition for transforming external knowledge into innovation [2]. Furthermore, hotels are more likely than tour operators to use universities as a source of innovation, and in hotels, innovation is more likely to be disruptive.

In conclusion, it should be emphasised that the study shows that there are conditions for considering universities as sources of innovation for tourism enterprises. However, this influence is not equally distributed. For large chain companies, cooperation with universities is critical both in inspiring new ideas and implementing innovative solutions. This is since both the size and network connections with other entities are an essential source of resources required to develop the absorptive capacity. The prerequisite for higher utilisation of the university's potential is the further development of the enterprises' own resources or cooperation with other entities (e.g. within consortia), leading to an improvement in the absorptive capacity of academic knowledge.

The study has several limitations that are worth addressing in future studies. Firstly, the subject scope of subsequent studies should include other types of economic actors (not only hotels and tour operators). Research in tourism enterprises with a high share of new technologies, e.g. online intermediaries, specialised software providers or tourism start-ups, may be particularly interesting. Secondly, it seems interesting to extend the time frame and investigate how universities' role in shaping innovation is changing over time. Other important issues requiring further in-depth research include the problem of enhancing innovation in tourism enterprises as well as knowledge transfer from universities to enterprises, including financial and institutional support for these relations. More in-depth analysis regarding the significance of universities in innovations should include a direct comparison between the features of enterprises implementing innovations resulting from cooperation and enterprises not implementing innovations. Further research should also use more sophisticated statistical analysis to capture the relationship between academic knowledge and the effects of implementing or inspiring innovative activity. Another theme discussed in the literature [28] and requiring in-depth work is the issue of barriers that limit cooperation and, as a result, inhibit increasing innovation of tourism enterprises.

By becoming part of the external business network, universities can potentially play an important role in providing the knowledge necessary for innovation activities [8]. Concerning tourism companies, which do not usually conduct their own research activities (R&D), universities may become one of the primary sources of knowledge essential for improving innovativeness. The potential significance of cooperation implies the need for further in-depth research on the knowledge transfer from universities to tourism industry entities.

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